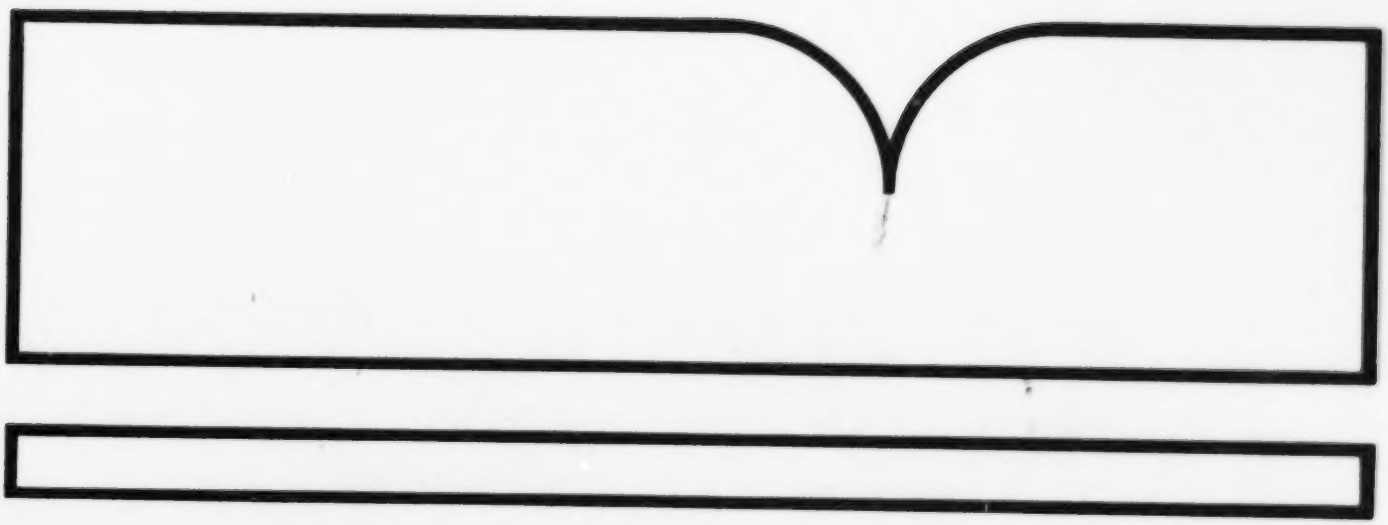
PB82-232802

Guideline for the Implementation of the Ambient Air Monitoring Regulations 40 CFR Part 58

(U.S.) Environmental Protection Agency
Research Triangle Park, NC

Nov 79



U.S. Department of Commerce
National Technical Information Service
NTIS

PB82-232802

United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Research Triangle Park NC 27711

EPA-450/4-79-038
OAQPS No. 1.2-126
November 1979

Air

EPA

Guideline for the Implementation of the Ambient Air Monitoring Regulations 40 CFR Part 58

Guideline Series

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U.S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

TECHNICAL REPORT DATA
(Please read Instructions on the reverse before completing)

1. REPORT NO. EPA 450/4-79-038 OAQPS # 1.2-126	2.
3. RECIPIENT'S ACCESSION NO. PB82 232802	
4. TITLE AND SUBTITLE: Guideline for the Implementation of the Ambient Air Monitoring Regulations 40 CFR Part 58	5. REPORT DATE
	6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S): Dennis R. Shipman	8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS: Monitoring & Data Analysis Division, Office of Air Quality Planning and Standards	10. PROGRAM ELEMENT NO.
	11. CONTRACT/GRANT NO.
12. SPONSORING AGENCY NAME AND ADDRESS: Same as #9	13. TYPE OF REPORT AND PERIOD COVERED
	14. SPONSORING AGENCY CODE

15. SUPPLEMENTARY NOTES

16. ABSTRACT

A guideline concerned with policies and procedures for implementing the Ambient Air Monitoring Regulations of May 10, 1979 (40 CFR Part 58), written in a question and answer format.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Ambient Air Monitoring Monitoring Network Design and Siting Monitoring Regulations Measurement Methods		EPA 68A

18. DISTRIBUTION STATEMENT: Standard distribution for all OAQPS guideline documents.	19. SECURITY CLASS *(This Report)*	21. NO. OF PAGES
	20. SECURITY CLASS *(This page)*	22. PRICE

EPA Form 2220-1 (9-73)

EPA-450/4-79-038

OAQPS No. 1.2-126

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Monitoring and Data Analysis Division
Office of Air Quality Planning and Standards

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air, Noise, and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

November 1979

OAQPS GUIDELINE SERIES

The guideline series of reports is being issued by the Office of Air Quality Planning and Standards (OAQPS) to provide information to state and local air pollution control agencies; for example, to provide guidance on the acquisition and processing of air quality data and on the planning and analysis requisite for the maintenance of air quality. Reports published in this series will be available - as supplies permit - from the Air Pollution Technical Information Center, Research Triangle Park, North Carolina 27711; or, for a nominal fee, from the National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161.

Publication No. EPA-450/4-79-038
(OAQPS Guideline No. 1.2-126)

FOREWORD

Many individuals were involved in the development of the Ambient Air Quality Monitoring and Data Reporting Regulations as well as the development of the material contained in this guideline document. For further information on specific topics, please contact the individuals listed below.

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Monitoring Methodology	Larry Purdue	541-2665	629-2665
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Monitoring Network Design and Instrument or Probe Siting	Stan Sleva or David Lutz	541-5351	629-5351

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GUIDELINE FOR THE IMPLEMENTATION OF THE
AMBIENT AIR MONITORING REGULATIONS 40 CFR PART 58

I. INTRODUCTION

The major purpose of this guideline is to provide assistance and information for the implementation of the EPA Regulations on Ambient Air Quality Monitoring and Data Reporting (40 CFR Part 58). The Clean Air Act of 1970 required the establishment of National Ambient Air Quality Standards (NAAQS) and placed the responsibility for prevention and control of air pollution on the State and local governments. To accomplish this purpose, the Act required the States to prepare and adopt State Implementation Plans (SIP) designed to attain and maintain the NAAQS. One of the essential elements of an implementation plan is a requirement for the establishment of a comprehensive ambient air quality monitoring system.

The Clean Air Act Amendments of 1977 in Section 319 requires EPA to establish monitoring criteria to be followed uniformly across the Nation. As a result of this requirement and recommendations of the Standing Air Monitoring Work Group (SAMWG), EPA has promulgated regulations under Part 58 of Title 40. This guideline will attempt to answer questions and provide guidance concerning the implementation of these regulations.

This guideline will not deal with each section of the regulation, for example, Sections 58.1 through 58.12 contain such things as definitions, purpose, applicability, etc., and are not restated here. A question and answer format is used and is based on discussions with State, local and Regional personnel during the development and revisions of this regulation. It also reflects discussions which took place at the Regional Office workshops to review the final monitoring regulations with State and local agencies.

II. 40 CFR Part 58 (Regulations)

Q1 Are there any limitations on the seasonal exemptions from operation schedules permitted in section 58.13?

A These exemptions should not be granted for periods when it would appear likely that an exceedance of the standards might occur. Seasonal exemptions from monitoring may not be granted for any NAMS site. This requirement is necessary to provide complete data for the standard setting and revision process and the tracking of annual trends.

Q2 Must Special Purpose Monitoring (SPM) used for control strategy demonstrations or as support for planned SIP revisions meet requirements beyond those in Appendix C?

A Paragraph 58.14 is being amended to allow the use of some non-reference or non-equivalent monitoring methods in some cases. Additional guidance will be provided when the amendment to 58.14 is proposed.

Q3 What will constitute an acceptable SIP to implement the monitoring regulations (58.20)?

A An example of an acceptable SIP for the monitoring regulations is attached to this document. (Attachment 1.)

Q4 Does the SIP have to identify the episode monitoring sites?

A The SIP must provide for episode monitoring sites. These sites do not have to be identified in the SIP; however, each state must provide the Regional Office a copy of this list by July 1, 1980.

Q5 What constitutes an acceptable SLAMS network description?

A The SLAMS network description (referred to in 58.20e) must contain no less than the following:

a. A complete SAROAD site identification form for each site.

b. The location (city and proposed street address) for scheduled stations (for those not currently in operation).

c. The sampling and analysis method.

d. The sampling schedule.

e. The monitoring objectives and spatial scale of representativeness as defined in Appendix Part 58.

f. A schedule for:

(1) Locating and placing into operation each SLAMS which is not located and operating at the time of network description submittal;

(2) Implementing quality assurance procedures of Appendix A to Part 58 for each site for which such procedures are not implemented at the time of network description submittal; and

(3) Resiting each SLAMS which does not meet the requirements of Appendix E to Part 58 at the time of network description submittal.

g. A copy of any siting waivers requested for the site(s) within the network which will not meet the siting criteria by January 1, 1981 for NAMS sites and January 1, 1983 for other SLAMS sites.

An example form which could be used to meet the requirements of items b through f is attached (Attachment 2). Item g above (siting waivers) is not required by 58.20; however, it is believed that a copy of such waivers should be available to the public along with the network description. In addition to the minimum requirements, it is recommended that the network description should eventually contain information similar to the NAMS Management System Information (MIS) Form and, if possible, the NAMS Hard Copy Information (NHCI) for each SLAMS. A NHCI form will be required for all NAMS siting waivers as part of the waiver application.

Q6 When and to whom is the SLAMS network description due?

A The network description is due by January 1, 1980, to the Regional Administrator or his designee. In order to fulfill various requests for summary information concerning the SLAMS networks, the Monitoring and Data Analysis Division (MDAD) will need a copy of each SLAMS network description. A copy of each State network description should be sent to Director of the Monitoring and Data Analysis Division (MDAD) MD-14, RTP, N.C. 27711 within 3 months after submission to the Regional Office.

Q7 Why does Appendix D have to be used in designing the SLAMS network? (58.21)

A Appendix D is to be used in designing the SLAMS network to ensure that the networks are designed using a uniform basis as required by the Clean Air Act Amendments of 1977. In order to ensure uniformity and yet allow for differences dictated by local circumstances the networks will be designed using the criteria of Appendix D through the joint efforts of State and local agencies together with the Regional Offices.

Q8 Why do SLAMS have to meet Appendix C requirements when placed in operation rather than January 1, 1983 (58.22)?

A The promulgation of part 58 did not change the old part 51.17a requirement for reference or equivalent monitoring methods. This requirement was established in 1975 and allowed a grace period until Feb. 18, 1980 for SO_2, CO and O_3 for replacement of non-reference or equivalent methods. January 3, 1980 was established in 1977 as the replacement date for NO_2 methods.

Q9 What constitutes the annual review required by 40 CFR Part 58.20(d) and 58.25?

A The SLAMS network will be reviewed annually by the State as indicated in Sections 58.20(d) and 58.25. The State may delegate portions of the network review to local agencies who operate part of the network. The purpose of the annual review is to determine if the various stations in the network are:

a. In conformance with Appendices A, C, D and E.

b. Appropriately located (is there a monitor where one is needed, should any be deleted or moved)

c. Providing the kinds and quality of data to meet the agency's needs and priorities (i.e., highest expected concentrations; representative of public exposure, significant source impact, background concentrations)

A written report of the findings of the annual review will be submitted to the EPA Regional Office. It should contain the findings of the network review, proposals for any changes (additions, deletions or relocations) and a schedule for any proposed changes. Modifications to the SLAMS network as a result of the annual review or any other reasons will be subject to the approval of the Regional Administrator. The Regional Office shall consult with and obtain concurrence of the Director, MDAD for any modification which affects a NAMS site.

Q10 When must the first annual SLAMS review be conducted?

A The first annual review will be conducted in fiscal year 1980. The date for this review and subsequent annual reviews will be established by agreement between the States and their respective Regional Offices during the 105 Grant review process. Each Regional Office will inform annually, the Director, MDAD of the schedule for annual reviews when such schedules are developed. Submission of the SLAMS network description by Jan. 1, 1980, is sufficient to meet the requirements of the fiscal year 1980 annual review.

Q11 What information must be provided in the annual SLAMS summary report required by Section 58.26?

A The annual summary report must contain the following:

a. Probability limits for precision and accuracy of the reporting organization for each site.

b. SLAMS data for each SLAMS site in the format specified in Appendix F.

c. A listing by pollutant of the monitoring sites in each reporting organization within the State (Section 5.2, Appendix A).

d. The location, date, principal pollution source(s), and duration of each air pollution episode which could cause significant harm to the health of persons as defined in Section 51.16 (a).

Q12 When is the first annual SLAMS summary report due?

A The first annual SLAMS summary report is due July 1, 1982 for data collected during 1981.

Q13 Will EPA provide assistance in preparing the annual summary report?

A EPA Regional Offices may prepare upon request the air quality data summaries required in Appendix F for any SLAMS site that the hourly or daily data for the year has been entered in the SAROAD data files. The National Air Data Bank (NADB) will prepare the software for producing the SLAMS summaries which will be ready in time for the first annual report in 1982.

Q14 How much SLAMS data must be reported to the Regional Office and on what frequency?

A Paragraph 58.28 states that the Regional Administrator may request any or all data related to any SLAMS site. The Regional Offices should, during the network discussion and design phase, identify their ongoing and routine data submission requirements. Requests for additional data beyond the ongoing and routine data submittals should be held to a minimum.

Q15 Who will designate and approve NAMS sites (58.30 and 58.32)?

A Each State, together with their Regional Office, will select a group of sites based on the objectives of Appendix D and the siting criteria of Appendix E to be proposed as NAMS sites. The Monitoring and Reports Branch NAMS Coordinators will review and discuss with the Regional Offices various aspects of particular proposed sites as the need arises. After the site selection process has been completed, each State will submit a network description to the Administrator through the Regional Office by January 1, 1980. Receipt of the network description on or before the deadline will meet the submission requirement. The Regional Office will forward the network descriptions to the Monitoring and Reports Branch NAMS Coordinators for approval by the Director, MDAD. The NAMS network description, together with the information required on the Management Information System forms, will be used to determine the adequacy of the proposed sites. Similarly, any other items that require the Administrators approval shall be sent to MRB for submission to the Director, MDAD.

Q16 Is there a difference between the SLAMS and the NAMS network descriptions (58.31)?

A The NAMS network description is a separate description from the SLAMS network description. The NAMS description contains all of the items required in the SLAMS network description (58.20(e)) plus the name of the urbanized area that the site is located in. The downwind O_3 site in certain situations may not be located inside the boundaries of an urbanized area. In such cases, the name of the urbanized area which the O_3 site supports will be used.

Q17 When does NAMS air quality data have to be submitted (58.35)?

A Edited and validated NAMS quarterly data are to be submitted through the Regional Office to the National Air Data Bank (NADB) within 90 days after the completion of the calendar quarter starting with the first calendar quarter in 1981. This means any Regional review, editing or validation must be completed and the data must be transmitted to the National Computer Center within the 90 day period. Information concerning data format, editing and validation is described in the AEROS Users Manual (EPA-450/2-76-029, OAQPS No. 1.2-039).

III. APPENDIX A - QUALITY ASSURANCE - SLAMS

Q1 By what date must a written program (plan) for assuring the quality of the data at all NAMS sites be submitted to EPA?

A June 30, 1980 has been established in the "EPA Agency Guidance FY1980-1981" as the due date for the written State quality control program. Guidance for developing the written quality control program is contained in the "Quality Assurance Handbook for Air Pollution Measurement Systems, Volume 1 and 2."

Q2 What is the deadline for implementation of the quality assurance programs?

A The regulations establish the deadline for implementation of the quality assurance program at NAMS sites as January 1, 1981 (58.34) and January 1, 1983 for SLAMS sites (58.23).

Q3 What is a reporting organization? (Section 3, Appendix A)

A A reporting organization is a State or subordinate organization within a State which is responsible for a set of sites which monitor for a particular pollutant and for which precision and accuracy assessments can be pooled. Some common factors which should be considered in defining reporting organizations are: (1) operation by a common team of field operators; (2) common calibration facilities; and (3) supported by a common laboratory or headquarters.

Q4 What is the deadline for submission (to the Regional Office and EMSL) of the first Reporting Organization List required by Section 5 of Appendix A?

A The first Reporting Organization List must be submitted to the Regional Office and EMSL by June 30, 1980. The list must contain all NAMS by reporting organization but may also contain those SLAMS which are covered by the QA program during the period (quarter) for which the precision and accuracy (P&A) estimates are representative.

Q5 How will precision and accuracy (P&A) data be submitted?

A The P&A data will be calculated as described in Appendix A and sent to the Regional Office and EMSL in the format prescribed in section 5.3 of Appendix A.

Q6 When is P&A data due to the Regional Office and EMSL?

A The first quarterly P&A report for NAMS is due on July 1, 1981.

Q7 Where can additional information concerning quality assurance policies, procedures, audits and other technical matters be obtained?

A The quality assurance program is the management responsibility of the Environmental Monitoring Systems Laboratory (EMSL), Research Triangle Park, N.C. 27711. Therefore, questions concerning interpretation policies, etc., should be referred to the Quality Assurance Branch, MD-77, EMSL, RTP, NC 27711.

IV. APPENDIX B - QUALITY ASSURANCE - PSD

Except for deadlines which are established by the Regional Office, technical questions concerning Appendix B should be directed to Quality Assurance Branch, MD-77, EMSL, RTP, NC 27711, FTS # 629-2220; commercial # (919)541-2220.

V. APPENDIX C - MONITORING METHODOLOGY

Q1 What kind of monitoring instruments are permitted for SLAMS and NAMS sites?

A Appendix C specifies that reference or equivalent methods will be used as follows:

a. Continuous instruments for all NAMS sites, except TSP and lead monitoring.

b. Continuous or manual instruments for all SLAMS sites.

c. Any non-reference or non-equivalent instrument approved under one of the exceptions in Appendix C.

Q2 What kinds of exceptions to the reference or equivalent requirements are available in Appendix C?

A Appendix C provides an approval process for some instruments used in certain geographical areas which were purchased prior to February 18, 1975 for the following reasons:

a. interference

b. nonconforming ranges

c. unapproved ranges

For further information with respect to this topic, consult Appendix C and/or Dept. E at MD-77, EMSL, RTP, N.C. 27711, FTS #629-2665, commercial #(919)541-2665.

Q3 May the user modify a reference or equivalent instrument?

A A user may modify a reference or equivalent instrument if approval is obtained under the provisions of Appendix C. (Section 2.8.)

Q4 What monitoring method may be used for short-term TSP measurements during air pollution episodes?

A There are two modified hi-vol methods and one procedure for showing a quantitative relationship for non-hi-vol methods that have been approved for this application. A complete description of these approaches is available in OAQPS Guideline Number 1.2-114, entitled, "Guidance for Selecting TSP Episode Monitoring Methods." Briefly, this document describes:

a. multiple instrument staggered 24-hour hi-volume sampling

b. a series of short time interval hi-volume sampling

c. a procedure to demonstrate a quantitative site specific relationship between the reference hi-vol and some other non-hi-vol method of measuring TSP.

Q5 How soon does a site specific relationship to a non-hi-vol method for TSP episode measurements have to be demonstrated?

A This relationship must be demonstrated for each episode site using a non-hi-vol method as soon as practicable but not later than Jan. 1, 1983. Paper tape samplers may be used until this relationship is demonstrated. If the relationship is not demonstrated, then one of the hi-vol methods must be selected. Documentation of these studies or demonstrations must be supplied to the Regional Office for approval.

VI. APPENDIX D - NETWORK DESIGN FOR SLAMS AND NAMS

Q1 What is a spatial scale of representativeness?

A The concept of spatial representativeness was developed as a system for classifying monitoring sites and the uses of their data. Spatial scale of representativeness implies a boundary to the dimensions of the air parcel nearest a monitoring site throughout which actual pollution concentrations are reasonably similar. The concept of spatial scales is further described in reference 10-14 of Appendix D, 40 CFR 58.

Q2 How do States determine spatial scale of representativeness and objectives of each pollutant monitor?

A The classifying of monitoring sites can be accomplished in a series of steps based on Appendix D and its associated references. For an existing monitoring location, the sequence would be as follows:

a. Using Appendix D, determine the objective(s) each pollutant monitor is to meet or any other objective that the site may be established for.

b. Look at the physical aspects of the site (e.g., location, topographic setting, roads, local sources, type of pollutant monitored, meteorology, etc.) to determine what affects the spatial concentration patterns and to what extent.

c. Assign a scale of representativeness using criteria contained in Appendix D and the appropriate references.

Alternatively, one could decide that none of the existing sites met a particular objective and then seek out a new site which will meet the desired objective.

Q3 Must the objectives and spatial scales be the same for all instruments (collocated) at the same site or location?

A The objectives and spatial scales may be different for each collocated instrument. For example, a point 100 meters from a freeway may be a neighborhood scale for ozone, a middle scale for CO, a neighborhood scale for TSP and an urban scale for SO_2.

Q4 Can the microscale be used for TSP and SO_2 monitoring?

A This scale is not appropriate for NAMS and is not too common for SLAMS. However, it may be a valid scale for SLAMS when measuring the impact of point sources in confined geographical areas, during fumigation conditions, etc.

Q5 How much documentation is needed of the extent to which the monitoring objectives and scales of representativeness (Appendix D) are being met?

A A simple narrative statement in the network description which states that the site(s) are meeting criteria (objective and scales of representativeness) is sufficient. If a site does not meet the criteria, the nature of the deficiency must be described and reasons why it can not be overcome must be in the network description. The Regional Office personnel will have to verify that each NAMS meets the criteria, preferably by site visit, prior to the network approval by the Director, MDAD.

Q6 Must all new sites be located according to the procedures and criteria in Appendix D?

A Yes, all new sites must be located according to the procedures, criteria and references in Appendix D. (Appendix D guidance should be used in any aspect where it appears to conflict with one of the references.)

Q7 Is there a prescribed minimum number of SLAMS in a SIP network?

A There are no specified minimum or maximum number of SLAMS sites in a SIP network, however, the network must provide stations located to satisfy the following monitoring objectives:

a. Those stations needed to have an approvable NAMS network and any other stations needed for a viable PSI and episode monitoring program.

b. Measurement of highest concentrations

c. Determination of representative concentrations in areas of high population density.

d. Determination of the impact of significant sources or source categories on ambient pollution levels.

e. Determination of general background levels.

Q8 How many NAMS may a State have in its portion of the National network?

A Appendix D stipulates the number of sites, based on population and existing pollution levels in those areas. In general, deviations from the required number of sites will not be permitted. The urbanized area population size for the purposes of Appendix D shall be the (1970 Census of Population; Supplementary Report: Population of Urbanized Areas Established Since the 1970 Census for the United States; 1970,") referred to in paragraph 58.40 of the regulations.

VII. APPENDIX E - PROBE SITING CRITERIA

Q1 What kind of documentation is required by Appendix E and where should it be located?

A Each operating agency should develop a site file located in its main office. This site file should, at a minimum, contain all pertinent location information concerning the agency's SLAMS sites as soon after site selection as practical. The location information should include the address, all vertical, horizontal measurements and a schedule for compliance of all sites not already meeting the requirements of Appendix E. Examples of the format and types of information which could be used are the NAMS Management Information and NAMS Hard Copy Information forms. These forms are mandatory for NAMS sites and could be used for SLAMS sites. This information is to be collected by the States and should be made available to the RO upon request.

Q2 What portions of a roadway are included for purposes of determining traffic volumes.

A A roadway includes all traveled lanes, including any service road. It also includes any medians dividing the various lanes. Arbitrarily, median is defined to be no wider than 20 meters. Any median wider than 20 meters shall mean that two nearby roadways exist. If physical obstructions occur in the median such as buildings or trees, then these shall be treated as separate roadways.

Q3 What effect will roadways with service roads have on setback distances?

A Normally, the service road situation should be avoided by locating the monitor along a stretch of road without a service road, because of the problems related to assessing the effects of resuspension and perhaps great differences in traffic on measures values. If a service road siting cannot be avoided, the setback distance shall start at the edge of the nearest traveled lane of the service road.

Q4 Can a monitoring site be established in a median strip?

A Monitoring sites for SLAMS should not be permitted in the median strip because the public does not normally reside in the median strip for time periods equal to the averaging time of any of the current ambient standards. A siting waiver will be required for any monitor located in a median.

Q5 For what reasons can a waiver from Appendix E siting requirements be granted?

A An Appendix E waiver for a site meeting a critical monitoring objective at a particular site may be granted for the following reasons:

a. Physical constraints of the existing or new site which prevent the site from meeting siting criteria such as, probe height, setback distances, obstructions, and a lack of suitable sites within the areas of representativeness.

b. The site can be demonstrated to be as representative of the monitoring area as it would be if the siting criteria were being met. (This may be done by use of monitoring, analytical or modeling studies. Cost benefits, historical trends, and other factors may be used to add support to the above; however, they in themselves, will not be acceptable reasons for granting a waiver.

A waiver for a new site must be based on both of the above criteria; however, a waiver may be obtained for an existing site if it meets only one of the above.

Q6 How is a waiver obtained?

A An application for a waiver must be submitted to the Regional Office for each SLAMS site for which a waiver is being requested. Waiver applications for NAMS sites shall be submitted to the Director, MDAD, through the Regional Office. The request or application must include the following:

a. A narrative statement clearly describing the critical monitoring objective of the site

b. A completed NAMS Hard Copy Information for or equivalent

c. A copy of any monitoring or modeling studies performed to demonstrate that the site will be representative.

d. A narrative statement describing the siting problem and lack of suitable sites in the nearby area.

Waivers should be applied for as early in the NAMS network design phase as the need can be identified.

Q7 Who will approve waivers?

A The Regional Administrator or his designee will be the waiver approving authority for SLAMS sites and the Director, MDAD, shall approve waivers for NAMS sites. Waivers for NAMS sites are to be sent to the MRB NAMS Coordinators for submission to the Director, MDAD.

Q8 Is there a maximum downwind distance for the peak ozone measurement site?

A The downwind distance for the maximum ozone site should not be more than 10 to 20 miles from the Central Business District; primarily since minimum ozone levels associated with stagnating conditions and relating low wind speeds would most likely be located in this downwind range. Also, sites located in the 10 to 20 mile down range are probably subject to a greater number of days of high ozone levels than sites further downwind because of the diminishing frequency with which the emissions affect sites located beyond this range.

Q9 Can historic (past) data from sites that did not meet the new Appendix E siting criteria be used for SIP purposes?

A As was stated in the May 10, 1979 preamble to the monitoring regulations under the heading General Comments, such data can be used for SIP purposes. For additional information, please review the discussion covered in the preamble.

VIII. APPENDIX F - ANNUAL SLAMS AIR QUALITY INFORMATION

Q1 What format should be used for the Annual SLAMS Report?

A It is recommended that a format similar if not identical to the format shown in Section 2 of Appendix F (indicating the required information) be used for the written report.

Q2 What format should be used for the data certification?

A The following will serve as an example certification:

I (name), (title) on this (day) of (month), (year) do hereby certify that I have reviewed the data contained in this report and that to the best of my knowledge, this report is accurate and the data has been collected by this State Agency or delegated local agency where indicated under at least the applicable monitoring requirements and conditions described in 40 CFR 58.

IX. APPENDIX G - UNIFORM AIR QUALITY INDEX AND DAILY REPORTING

Q1 How shold PSI reporting sites be selected?

A PSI site selection should be based on historical data. One site should be a downtown or "urban center" site and at least one suburban site should be selected to contrast differences between downtown and the suburbs. Because ozone (O_3) is a pervasive pollutant, one of the suburban sites should be in the downwind direction to reflect the suspected highest O_3 concentrations.

Q2 What kind of record keeping and format should be used for PSI?

A A calculation approach and record format is described in an EPA Publication entitled, "Rapid Techniques for Calculating the Pollutant Standards Index" EPA-600/4-78-002. This publication is being revised to reflect the new ozone standard. The reporting agency shall keep annual records of the frequency of index value occurrence by site as required by Section 9 of Appendix G.

Q3 When must an agency begin reporting their air quality index and descriptor words so as to conform with Appendix G?

A It is recommended that such a change should occur as soon as practical; however, the uniform index must be in use by the time the reporting requirement takes effect, (1/1/81 for an urban area greater than 500,000 or 1/1/83 for urban areas between 200,000 and 500,000).

Q4 How and what kind of exceptions to the Uniform Air Quality Index and Daily Reporting required by Part 58.40 will be granted?

A Exceptions will be granted by the Administrator. Requests must be submitted in writing and addressed to Director, MDAD, MD-14, RTP, N.C. 27711, FTS # 629-5447, commercial # (919)541-5447. The request must contain an adequate description of the exception being requested and the logical support (justification) for such exceptions. The following general guidance is offered:

a. No exceptions to the reporting frequencies required in Appendix G.

b. No exceptions to index and descriptor categories as described in Appendix G. A State or local agency who has used a slightly different descriptor word or phrase for many years (e.g., 10 years or more) may wish to apply for an exception on the grounds that such an exception will minimize public confusion. The application under this

provision must address any potential confusion that a non-uniform index may cause for nearby areas using the uniform index.

c. States having standards on particular air pollutants for which EPA has no standard, may be granted an exception providing the State can justify a new segmented linear function for the pollutant in question with corresponding health effects information. If the exemption is granted, the State would have to keep annual summaries covering the National Uniform Index as well as the State modified index.

Q5 Is there a deadline for requesting an exception under the exceptions provisions?

A Exceptions to the descriptor words must be applied for by July 1, 1980. Exceptions to allow for the creation of new pollutant subindices for pollutants which have State standards, but do not have Federal standards, should be applied for as soon as the need for such is identified. In order to create a segmented linear equation for a new pollutant, the State agency would have to document the appropriate health effects for not only the standard, but the episode criteria and State significant harm level as well.

Q6 When do the PSI sites have to be identified?

A Each PSI reporting agency will provide the Regional Office with a list of PSI sites by July 1, 1980 for cities of 500,000 or more and July 1, 1982 for cities of 200,000 or more.

X. SUMMARY OF IMPORTANT DEADLINES established in the Regulations, FY-80 Agency Guidance Document and this guideline.

January 1, 1980	Monitoring SIP Revisions due for submittal to the Regional Administrator
January 1, 1980	SLAMS network description (as defined in Part 58.20e) to be submitted to the Regional Administrator
January 1, 1980	NAMS network description (as defined in Part 58.31) to be submitted through the Regional Office to the Administrator (MDAD)
January 3, 1980	All NO_2 instruments used in SLAMS or NAMS must be reference or equivalent
February 18, 1980	All SO_2, CO and O_3 instruments used in SLAMS or NAMS must be reference or equivalent
June 30, 1980	Written QA Program must be submitted to EPA Regional Offices
June 30, 1980	The Reporting Organization List should be submitted to EMSL and RO's
July 1, 1980	First quarterly NAMS P&A data report should be submitted to the Regional Office and EMSL for any reporting organization that has data available
July 1, 1980	Last date for submission of requests for exceptions to the descriptor words for the PSD to Director, MDAD
January 1, 1981	All proposed NAMS sites must have begun operation and in compliance with Appendices A and E
January 1, 1981	Begin reporting PSI values in cities over 500,000
July 1, 1981	The first quarterly NAMS data report should be submitted through the Regional Office to the Administrator
July 1, 1982	First annual SLAMS data summary is due to be submitted through the Regional Office to the Administrator
January 1, 1983	All proposed SLAMS sites must have begun operation and be in compliance with Appendices A & E
January 1, 1983	Begin reporting PSI values in cities over 200,000

ATTACHMENT I

AN EXAMPLE SIP FOR AMBIENT AIR QUALITY MONITORING

The following pages consist of an example of a SIP revision that would be submitted by a State in order to comply with the requirements of Subpart C of 40 CFR 58. Requirements for Preparation, Adoption, and Submittal of Implementation Plans, of 40 CFR Part 51 contains the requirements with which States must comply in order to prepare and submit approvable SIPs. Section 51.190 of Part 51 refers the reader to Subpart C of 40 CFR 58 for the detailed SIP requirements concerning air quality monitoring. Since Part 58 contains other requirements not related to SIPs, Subpart C is set aside as that portion of Part 58 relating to SIP requirements for monitoring. The following example SIP revision, therefore, consists only of material that satisfies Subpart C or the ambient air quality monitoring portion of the SIP.

In order to avoid confusing the details of this example SIP revision with the requirements for any specific State, a hypothetical situation is represented. The SIP revision is for the State of Union in EPA Region XI and would appear as the fifth section of Union's SIP. The section number is arbitrary and is not meant to indicate that air quality surveillance should be the fifth item in a SIP. The types of methods or names of instruments; the numbers of stations to be moved, added, or deleted; and the numbers of methods or instruments used in the network were all arbitrarily chosen. The organization of the SIP revision is also arbitrary.

The following example represents a comprehensive SIP revision that would fully explain a State's monitoring program. The example, therefore, contains more than what is actually required by Subpart C. The portions of the example that have been bracketed are the portions that specifically fulfill the Subpart C requirements. An approvable SIP revision need only satisfy the Subpart C requirements and could consist of only the portions indicated by brackets. As can be seen, however, the additional material makes for a more readable and understandable SIP.

The following example is meant only to be an aid to States that would like to have an example to work from when developing a SIP revision for air quality surveillance. As mentioned above, an approvable SIP revision may consist of only the information indicated by brackets; however, that information may be organized in any way a States wishes.

If a State chooses to add additional information to a SIP revision for purposes of clarity or comprehensiveness such as is done in the example, it should be realized that any future change to the situation described will necessitate a public hearing and submittal to EPA of a SIP revision. For example, a State's episode monitoring procedures may change in the future which would cause the SIP to be inaccurate and would necessitate a SIP revision to change the SIP to reflect the new procedures. In such a case, it would have been less trouble to have not included episode monitoring procedures in the SIP.

In general, a State should avoid including details or facts that might possibly change. Conversely, the data reporting procedures in the example SIP closely reflect the Subpart C requirements. A change in those data reporting provisions would not be necessary unless Subpart C were changed. The data reporting provisions could, therefore, be considered an appropriate portion of the SIP revision.

5.0 AIR QUALITY SURVEILLANCE NETWORK

5.1 INTRODUCTION

The State of Union has been monitoring air quality since 1956 when the Union Department of Health placed dustfall buckets and sulfation candles in several areas in the State which were considered high pollution areas. In 1972, a plan was submitted to EPA for establishing an air quality surveillance system in accordance with EPA regulations published in Section 420.17 of 42 CFR Part 420. The surveillance system established as a result of that plan consists of 115 stations, the data from which are being reported to EPA's AEROS data banks.

This section of Union's State Implementation Plan (SIP) consists of provisions which meet the recent EPA regulations for monitoring air quality which are in 40 CFR Part 58. The air quality surveillance network consists of the present network with certain modifications and additions. Also, data will be reported to EPA under the new Part 58 reporting procedures. 58.20(a)

The network will measure ambient levels of "criteria pollutants" or those pollutants for which national ambient air quality standards (NAAQS) have been established by EPA. The data will be used, among other things, for determining the status of attainment of NAAQS, as a basis for requiring control of source emissions of criteria pollutants, for determining and tracking air pollution episodes, for growth planning and zoning in urban areas, for determining the impact of point or area sources, and for reporting to the public the status of this State's air quality. 58.20(a)

5.2 AIR QUALITY SURVEILLANCE NETWORK DESIGN

The modifications which will be made to the existing monitoring network were determined jointly by representatives of the State of Union and of EPA Region XI in meetings on February 12, 1979; May 16, 1979 and July 9, 1979. The basis for determining the network design was the data needs of EPA Region XI and the data needs of Union for SIP purposes. The process of network design was carried out as required by Appendix D of 40 CFR Part 58. In accordance with Appendix D, the monitoring objective and spatial scale of representativeness was established for each monitoring station in the network. 58.20(b)

The monitoring objective for each station was chosen from among the following four objectives:

a. Determining highest concentration;

b. Determining concentrations in areas of high population exposure;

c. Point or area source impact;

d. Background

The spatial scales of representativenesss are:

a. Microscale - up to 100 meters;

b. Middle Scale - 100 meters to 0.5 kilometers;

c. Neighborhood Scale - 0.5 to 4.0 kilometers;

d. Urban Scale - 4 to 50 kilometers;

e. Regional Scale - 50 kilometers and above.

The major changes to the existing network will be to:

a. Eliminate 17 hi-vol samplers, eight NO_2 bubblers (Arsenite Method), 12 SO_2 bubblers (pararosaniline Method), and 5 Ozone analyzers (chemiluminescence).

b. Relocate 11 hi-vol samplers, 2 ozone analyzers (chemiluminescence), 9 CO analyzers (infrared), 1 NO_2 analyzer (chemiluminescence), and 7 tape samplers.

c. Add one NO_2 analyzer (chemiluminescence), and 2 SO_2 analyzers (automated pararosonaline method).

5.3 NETWORK DESCRIPTION

A full description of the monitoring network will be on file for public inspection between the hours of 9:00 a.m. and 4:00 p.m., Monday through Friday excluding legal State holidays, at the Air Quality Division of the Union Environmental Control Agency, Room 747, Environmental Building, 13 Main Street, Capital City, Union.

The network description will include the following for each station in the air quality surveillance network: 58.20(e)

a. The SAROAD site identification form for existing stations;

b. The proposed locations for stations that are scheduled to be established;

c. The identity of the monitoring method or analyzer used;

d. The identity of any necessary method of sample analysis,

e. The operating schedule;

f. The monitoring objective;

g. The spatial scale of representativeness.

Also on file for public inspection will be a schedule for:

a. Locating, placing into operation and filing the SAROAD site identification form for any station which is not operating or located correctly on (date of SIP revision submittal).

b. Implementing quality assurance procedures for any station for which those procedures are not implemented by (date of SIP revision submittal). 58.20(e)

c. Re-siting each station not sited according to the siting parameters of Appendix E of Part 58 by (date of SIP revision submittal).

5.4 STATION DESIGNATIONS

Each station in the air quality surveillance network provided for by this SIP and described in the network description will be termed a State and Local Air Monitoring Station or a SLAMS. Any other station operated by the State of Union which is not necessary for inclusion in the SIP network will be termed a Special Purpose Monitoring Station or an SPM station. 58.20(a)

5.5 AIR QUALITY MONITORING CRITERIA

As required by 40 CFR Part 58, all stations in the State of Union's SLAMS network will be operated in accordance with the criteria established by Subpart B of 40 CFR Part 58. 58.20(b)

Each SLAMS will be sited in accordance with the siting parameters contained in Appendix E to 40 CFR Part 58.

Each continuous analyzer in a SLAMS will be operated on a continuous basis and data gathered as hourly averages except for periods of maintenance or calibration. Each manual method will be operated for a full 24-hour period at six day intervals.

Method used in SLAMS will be reference or equivalent methods as defined by EPA in Section 50.1 of 40 CFR Part 50, or will be a particulate sampler for which a site-specific relationship to the hi-vol has been established at the site of the SLAMS. Methods used by the State of Union in its SLAMS network include: 58.20(b)

a. The hi-vol (TSP)
b. The tape sampler (TSP)
c. Chemiluminescence analyzers for NO_2 and O_3
d. The Sodium Arsenite Method (NO_2)
e. Infrared analyzers (CO)
f. The pararosanaline Method (SO_2)
g. Coulometric analyzers (SO_2)

The quality assurance procedures of Appendix A to 40 CFR Part 58 will be followed when operating the SLAMS network and processing air quality data. 58.20(b)

5.6 EPISODE MONITORING

The concept of episode monitoring involves daily monitoring in order to detect when ambient pollution levels reach concentrations corresponding to an air quality episode and monitoring during episodes to maintain surveillance of the situation. The State of Union will operated SLAMS for declaring and monitoring episodes for CO, SO_2, NO_2, O_3, and particulate matter in the cities of Springfield, Capital City, Metropolis, and Union City. At least one episode station for each of the five pollutants noted above will be operated in those cities. The episode stations will use the following methods operated on a continuous basis: 58.20(c)

a. NO_2 Chemiluminescence analyzer (Monitor Labs 8440E)
b. SO_2 Coulometric analyzer (Phillips PW 9700)
c. TSP Tape sampler
d. O_3 Chemiluminescence analyzer (Bendix 8002, Melow OA325)
e. CO Infrared analyzer (Beckman 866, Lira 2025)

The tape samplers will be located in SLAMS that contain hi-vol samplers designed to sample every six days. A site specific relationship between a hi-vol and each tape sampler has been established for each station as described in EPA guideline (Guidance for Selecting TSP Episode Monitoring Methods, OAQPS, No. 1.2-114). Tape sampler data will, therefore, be converted to an equivalent micrograms per cubic meter value for use in detecting and monitoring episodes.

In general, the stations will be located in areas of highest expected pollutant concentration, or more than one station per pollutant will be located in an area in an effort to detect all episodes.

One of the following three methods will be used to provide adequate surveillance of monitoring data from episode stations in order that episode level concentrations be detected on a real time basis:

a. Certain stations will be visited daily;

b. Certain more remote stations will be visited when evidence indicates the possibility of an episode;

c. Certain stations with continuous analyzers are connected to an alarm system that detects episode levels and transmits an alarm via telephone lines to the Air Quality Division.

5.7 DATA REPORTING

Data from all SLAMS for an entire calendar year will be summarized and submitted to EPA by July 1 of the following year. The values determined and reported will be those values indicated in Appendix F to 40 CFR Part 58. Other information as required by Appendix F will also be reported in the annual report.

5.8 SPECIAL PURPOSE MONITORS

The State of Union will operate monitoring stations other than those in the SLAMS network. These other stations will be termed Special Purpose Monitor Stations (SPM) and will be used to supplement the SLAMS monitoring. The SPM stations will be used for purposes such as determining areas where permanent SLAMS need to be located, determining the effect of point sources, research, and determining acceptable growth patterns.

If data from SPM stations are to be used for SIP purposes such as support for control strategies, determination of attainment/nonattainment, or model validation:

a. The method used will be a method which is acceptable for use in a SLAMS as determined by Appendix C to 40 CFR Part 58;

b. Sampling will be continuous for automated methods or at least one sample every six days for manual methods;

c. The monitor will be sited in accordance with siting parameters of Appendix E to 40 CFR Part 58; and

d. The quality assurace procedure of Appendix A to 40 CFR Part 58 will be followed.

5.9 ANNUAL REVIEW

Beginning March 1 of each year, the Union Air Quality Division will review the air quality surveillance network to determine if there is a SLAMS in every location from whch there is a need for ambient air quality data or if all the stations in the SLAMS network are necessary. A report of the findings will be submitted to EPA Region XI by July 1 of each year along with a schedule to add stations to the SLAMS network, to relocate stations, or to eliminate stations as the case may be. The determination of the need to add, relocate, or delete stations will be based on the network design criteria in Appendix D to 40 CFR Part 58 or references therein.

58.20(d

5.10 DELEGATION OF AUTHORITY

The State of Union delegates the authority to operate and report data from SLAMS to the Capital City Department of Health and the Springfield County Health Department.

ATTACHMENT 2

EXAMPLE

NAMS NETWORK DESCRIPTION BY URBANIZED AREA

Urbanized Area	SAROAD I.D. # or Proposed Location for New Site	Pollutant Monitored	Ref/Eqv, Method Designation # or Date Expected *	Operating Schedule**	Monitoring Objective	Spatial Scale	Date Site began or is expected to begin operation	Date Q.A. Began or is Expected to Begin	Date site met or is expected to meet Appen. E Require.	Date waiver granted from Appen. E Require.
Detroit, Michigan	356380004F01	TSP	Hi-Vol	6th day	High Conc.	Neighborhood	3/29/72	3/5/80	1/1/79	None
		SO_2	EQSA-1275-006	Continuous	High Conc.	Neighborhood	4/1/75	12/15/80	--	None
		CO	RFCA-0276-008	Continuous	High Conc.	Micro	5/21/76	3/1/81	2/2/79	None
	356380019I01	O_3	EQOA-0577-019	Continuous	High Conc.	Urban	5/21/78	1/1/80	1/1/80	11/2/79
	356380024I01	SO_2	1/1/80	Continuous	High Pop. Exposure	Neighborhood	5/5/77	12/15/80	1/1/80	None
Ann Arbor, Michigan	350060001F01	SO_2	12/1/79	Continuous	High Pop. Exposure	Neighborhood	12/1/79	3/20/80	12/1/79	None
	350060004F01	TSP	Hi-Vol	6th day	High Conc.	Neighborhood	3/15/69	6/1/79	--	1/1/80
Jacksonville, Florida	090090001F01	NO_2	RFNA-0777-022	Continuous	High Pop. Exposure	Neighborhood	6/7/65	5/1/80	5/1/80	None
		O_3	EQOA-0577-019	Continuous[1]	High Pop. Exposure	Urban	3/18/74	2/1/80	3/18/74	None
	319 W. Elm St.	CO	6/1/80	Continuous	High Conc.	Micro	6/1/80	6/1/80	6/1/80	None

[1] Site will be operated April 1, through Oct. 31 annually.

* For high volume TSP samplers, enter hi-vol. For sites not current, enter the date Ref/Eqv. Methods will be used.

** Footnote-any planned non-operating periods, i.e., Oct. to April site will not be operated.